

REMARKS

Status of the Claims

Claims 1 and 4-20 are pending in the present application. Claims 2 and 3 have been cancelled and the subject matter thereof has been incorporated into claims 1, 4 and 5. Claims 6-20 have been added to further define the present invention. The basis for claims 6-8 includes the description on page 6, lines 5-10 of the specification. The basis for claims 9-11 includes the description on page 7, lines 4-13 of the specification. The basis for claims 12-14 includes the description on page 8, last paragraph through page 10, line 7 of the specification. Claims 15-17 are supported by the description on page 11, first full paragraph through page 12, first paragraph. Claims 18-20 are supported by the description on page 13 of the specification. Finally, formula (2) has been amended to correct a typographical error with respect to the point of attachment for R⁴.

Rejection of Claim 1 Under 35 U.S.C. 102(b) Over U.S. Patents 5,068,261 and 5,204,378 to Maruno et al. (Paragraph 3 of Office Action)

Claim 1 is rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by U.S. Patents 5,068,261 and 5,204,378 to Maruno et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claims 2 and 3 are free of this rejection. The subject matter of both claims 2 and 3 has been inserted into claim 1. Thus, this rejection is moot and should be withdrawn by the Examiner.

Rejection of Claims 1 and 2 Under 35 U.S.C. 102(b) Over U.S. Patent 6,005,137 to Moore et al. (Paragraph 4 of Office Action)

Claims 1 and 2 are rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,005,137 to Moore et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claim 3 is free of this rejection. The subject matter of both of claims 2 and 3 has been inserted into claim 1. Thus, this rejection is moot and should be withdrawn by the Examiner.

Rejection of Claims 1 and 2 Under 35 U.S.C. 102(e) Over U.S. Patent 6,288,226 to Moore et al. (Paragraph 5 of Office Action)

Claims 1 and 2 are rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,288,266 to Moore et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claim 3 is free of this rejection. The subject matter of both of claims 2 and 3 has been inserted into claim 1. Thus, this rejection is moot and should be withdrawn by the Examiner.

Rejection of Claim 1 Under 35 U.S.C. 102(b) Over JP 4-237055A
(Paragraphs 6-7 of Office Action)

Claim 1 is rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by JP 4-237055A. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claims 2 and 3 are free of this rejection. The subject matter of both of claims 2 and 3 has been inserted into claim 1. Thus, this rejection is moot and should be withdrawn by the Examiner.

Rejection of Claims 1-5 Under 35 U.S.C. 103(a) Over U.S. Patent 5,693,382 to Hamada et al. in view of U.S. Patent 6,005,137 to Moore et al. (Paragraph 8 of Office Action)

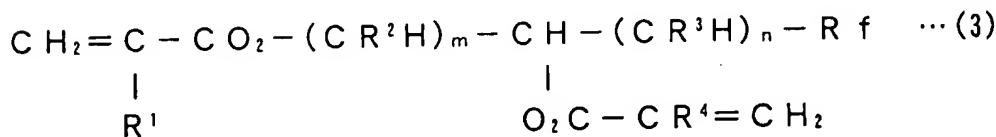
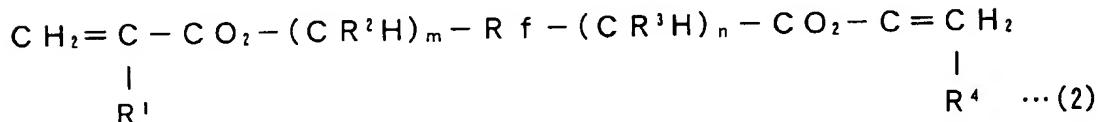
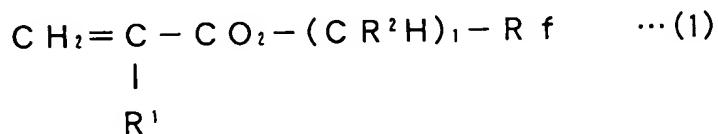
Claims 1-5 are rejected by the Examiner under 35 U.S.C. 103(a) as being obvious over U.S. Patent 5,693,382 to Hamada et al. in view of U.S. Patent 6,005,137 to Moore et al. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Paragraph 8 of the Office Action is unclear as to the exact reference which is being utilized by the Examiner. Applicants' representative contacted the Examiner on June 30, 2002, to briefly discuss which Hamada et al. reference is being used in the rejection in paragraph 8 of the Office Action. The Examiner

indicated that she is relying upon U.S. Patent 5,693,382 to Hamada et al.

The Present Invention

A first embodiment of the present invention as recited in claim 1 relates to an adhesive comprising a fluorine-containing polymer and an ultraviolet-curing fluorine-containing monomer, wherein the ultraviolet-curing fluorine-containing monomer is at least one kind of monomer selected from the group consisting of general formulas (1), (2) and (3):



wherein R¹ and R⁴ each independently representing hydrogen or a methyl group, R² and R³ each independently representing hydrogen or a hydroxyl group, Rf is a fluorine-containing group, and l, m and n each are an integer of 1 to 8, and the fluorine-containing polymer is a copolymer comprising

structural units represented by the following formulas (4), (5), and (6):

-C₂F₄- ... (4)

-C₃H₆- ... (5)

-C₂H₂F₂- ... (6).

A second embodiment of the present invention as recited in claim 4 relates to a pellicle comprising a pellicle film and a pellicle frame for supporting the pellicle film, wherein the pellicle film is adhered to the pellicle frame through an adhesive layer comprising a fluorine-containing polymer and a substance resulting from curing of an ultraviolet-curing fluorine-containing monomer, wherein the ultraviolet-curing fluorine-containing monomer and the fluorine-containing polymer are the same as defined in claim 1 (i.e. originally filed claims 2 and 3).

A third embodiment of the present invention as recited in claim 5 relates to a method for producing a pellicle including a pellicle film and a pellicle frame for supporting the pellicle film, comprising a step of adhering the pellicle film to the pellicle frame through an adhesive comprising a fluorine-containing polymer and an ultraviolet-curing fluorine-containing monomer, wherein the ultraviolet-curing fluorine-containing monomer and the fluorine-containing polymer are the

same as defined in claim 1 (i.e. originally filed claims 2 and 3).

U.S. Patent 5,693,382 to Hamada et al.

U.S. Patent 5,693,382 to Hamada et al. relates to a frame-supported pellicle for dustproof protection of a photomask in a photolithographic patterning work which is an integral body comprising:

- (a) a pellicle frame made from a rigid material and having substantially parallel end surfaces;
- (b) a pellicle membrane which is a transparent film of a fluorocarbon group-containing polymeric resin spread over and adhesively bonded to one of the end surfaces of the pellicle frame in a slack-free fashion; and
- (c) a layer of an adhesive intervening between the pellicle membrane and the end surface of the pellicle frame to adhesively bond the membrane and frame,

the adhesive having a glass transition temperature lower by at least 5°C than the glass transition temperature of the polymeric resin forming the pellicle membrane.

U.S. Patent 6,005,137 to Moore et al.

U.S. Patent 6,005,137 to Moore et al. relates to acrylates having a high degree of halogenation, as well as polymers that include one or more mer units derived from such acrylates provide materials having tailorably optical and physical properties. The polymers find utility particularly in optical devices including optical waveguides and interconnecting devices.

Distinctions Between the Present Invention and the Cited Prior Art

Briefly, it is the Examiner's position that "...it would have been obvious for one of ordinary skill in the art to use a radiation curable fluorinated crosslinking monomer, such as those taught by Moore et al., in the adhesive composition as taught by Hamada et al." However, the ultraviolet-curing flouorine-containing monomer of the present invention is not a crosslinking monomer. Rather, the ultraviolet-curing flouorine-containing monomer of the present invention is an adhesive.

More specifically, if a crosslinking monomer is used, the Tg is increased to, for example, about 100°C. In this regard, the Examiner should note that Example 20 at col. 33 (i.e. line 62) teaches that the Tg becomes 98.5°C. As a result, a difference between Tg of the adhesive using the crosslinking

monomer and Tg of the pellicle film becomes less than 5°C. It then becomes necessary to heat an adhesive using the crosslinking monomer to about 100°C in order to adhere a pellicle film to a pellicle frame. Thus, using a crosslinking monomer as an adhesive is clearly not suitable for use as an adhesive for a pellicle.

In contrast to the problems identified above when using a crosslinking monomer as an adhesive, in the present invention, the ultraviolet-curing fluorine-containing monomer is not used as a crosslinking monomer, but is used as an ultraviolet-curing adhesive. The difference in properties between the claimed adhesive and the crosslinking agent of the prior art allows the adhesive according to the present invention to be suitably used to adhere a pellicle film to a pellicle frame.

Accordingly, the claimed invention is clearly not obvious over the combined teachings of Hamada et al. and Moore et al. in view of the amendments to the claims and in view of the explanation given above. Thus, the rejection of claims 1-5 under 35 U.S.C. 103(a) should be withdrawn by the Examiner.

Rejection of Claim 4 Under 35 U.S.C. 112, Second Paragraph
(Paragraphs 9-10 of Office Action)

Claim 4 is rejected by the Examiner under 35 U.S.C. 112, second paragraph, for the reasons set forth in paragraph 10 of the Office Action. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claim 4 has been amended to clarify the present invention. The ultraviolet-curing fluorine-containing monomer of the invention is not used as a crosslinking monomer. Rather, the ultraviolet-curing fluorine-containing monomer of the invention is an adhesive. Therefore, the resulting substance is a two-phase system of fluorinated polymer and the resulting polymer is obtained from curing the monomer.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three month extension of time for filing a reply in connection with the present application, and the required fee of \$950.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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